PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of : Jason Dirk Rusmisel et al.

For : HIGH AVAILABILITY OF RESOURCES IN TELECOMMUNICATIONS NETWORK USING SYNCHRONIZED REDUNDANCY MECHANISM

Serial No.: : 10/681,238

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Art Unit : 2616

Examiner : Jason E. Mattis

Att. Docket : ALC 3092

Confirmation No. : 6559

APPEAL BRIEF

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Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed March 11, 2008.

I. REAL PARTY IN INTEREST

The party in interest is ALCATEL, by way of an Assignment recorded at Reel 014597, frame 0460.

II. RELATED APPEALS AND INTERFERENCES

Following are identified any prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal:

NONE.

III. STATUS OF CLAIMS

Claims 1-14 are on appeal.

Claims 1-14 are pending.

No claims are allowed.

Claims 1-14 are rejected.

IV. STATUS OF AMENDMENTS

All Amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The subject matter recited in claim 1 relates to a node of a telecommunications network, which node comprises redundant routing processor modules, each redundant routing processor module including a primary control processor (page 9, line 10; see [CTL]; Fig. 3), a run time control processor (page 9, lines 9-10; see [RTC]; Fig. 3), a message processor (page 9, lines 14-15; see

[MP]; Fig. 3), and a distributed layer processor (page 9, line 20; see [DL3-1]; Fig. 3), one module being an active module and the other an inactive module, a method of maintaining the inactive module in hot standby mode with the active module, the method comprising the steps of coordinating operations of the run time control processors (page 9, lines 9-10; see [RTC]; Fig. 3), the message processors (page 9, lines 14-15; see [MP]; Fig. 3), and the distributed layer processors (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) with the primary control processors (page 9, line 10; see [CTL]; Fig. 3); allocating resources between the message processors (page 9, lines 14-15; see [MP]; Fig. 3) and the distributed layer processors (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) with the run time control processors (page 9, lines 9-10; see [RTC]; Fig. 3); sending from the message processor (page 9, lines 14-15; see [MP]; Fig. 3) of the active module to the distributed layer processor (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) of the inactive module only a status affecting message which affects the status of a connection being held by the active module; and updating the distributed layer processor (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) of the inactive module in response to the status affecting message so that the inactive module is maintained in hot standby with the active module.

The subject matter recited in claim 9 relates to a node of a telecommunications network, which node comprises redundant MPLS processor modules, each redundant MPLS routing processor module including a primary control processor (page 9, line 10; see [CTL]; Fig. 3), a run time control processor (page 9, lines 9-10; see [RTC]; Fig. 3), a message processor (page 9, lines 14-15; see [MP]; Fig. 3), and a distributed layer processor (page 9, line 20; see [DL3-1]; Fig. 3), one module being an active module and the other an inactive module, a method of maintaining the inactive module in hot standby mode with the active module, the method comprising the steps of coordinating operations of the run time control processors ((page 9, lines 9-10; see [RTC]; Fig. 3), the message processors (page 9, lines 14-15; see [MP]; Fig. 3), and the distributed layer processors (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) with the primary control processors (page 9, line 10; see [CTL]; Fig. 3); allocating resources between the message processors (page 9, lines 14-15; see [MP]; Fig. 3) and the distributed layer processors (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) with the run time control processors (page 9, lines 9-10; see [RTC]; Fig. 3); sending from the message processor (page 9, lines 14-15; see [MP]; Fig. 3) of the active module to the distributed layer processor (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) of the inactive module only a status affecting message which affects the status of a label switched path being held by the active module; updating the distributed layer processor (page 9, line 20; see [DL3-1/DL3-2]; Fig. 3) of the inactive module in response to the status affecting message so that the inactive module is maintained in hot standby with the active module; and performing an activity switch from the active module to the inactive module to reverse the roles of the modules so that the label switched path is now held by the newly active module and the newly inactive module is maintained in hot standby.

The subject matter recited in claim 11 relates to a telecommunications node comprising two routing control cards, which are interchangeably maintained as active and inactive at any one time, each of the control cards comprising a distributed processor (page 9, line 20; see [DL3-1]; Fig. 3) for running protocols for managing a communications path; a message processor (page 9, lines 14-15; see [MP]; Fig. 3) for sending synchronization messages to the other control card to update the distributed processor of the other control card; a run time control processor (page 9, lines 9-10; see

[RTC]; Fig. 3) for allocating resources between the message processor and the distributed processor; and a primary control processor (page 9, line 10; see [CTL]; Fig. 3) for coordinating operations of the run time control processor, the message processor, and the distributed processor, characterized in that, while being maintained active, the distributed processor (page 9, line 20; see [DL3-1]; Fig. 3) processes all signaling messages concerning the communications path and generates synchronization messages indicating new status when the status of the communications path has changed, and, while being maintained inactive, the distributed processor (page 9, line 20; see [DL3-1]; Fig. 3) for receiving synchronization message from the other control card to stay synchronized with the distributed processor of the other control card.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following grounds of rejection are presented for review:

A. Claims 1-3 and 9-14 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 7,093,160 to Lau et al. (hereinafter "Lau").

B. Claims 4-8 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lau.

VII. ARGUMENT

A. Rejection of Claims 1-3 and 9-14 Under 35 U.S.C. § 102(e)

In section 3 on pages 2-9, the Final Office Action, dated December 11, 2007, rejects claims 1-3 and 9-14 under 35 U.S.C. § 102(e) as allegedly being anticipated by Lau.

The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ.2d 1051, 1053 (Fed. Cir. 1987); M.P.E.P. § 2131. The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ.2d 1913, 1920 (Fed. Cir. 1989); M.P.E.P. § 2131. The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ.2d 1566 (Fed. Cir. 1990).

1. Claims 1 and 9

Independent claims 1 and 9 recite the step of "sending from the message processor of the active module to the distributed layer processor of the inactive module only a status affecting message which affects the status of a connection being held by the active module" (emphasis added). As disclosed in the specification on lines 20-23 of page 8, the active control card filters out all refresh related messaging, sending only set up and teardown messaging sufficient to maintain the inactive card in hot-standby with the active card.

With respect to the above-quoted subject matter, the Office Action relies upon col. 4, lines 32-54 and col. 5, line 56 of Lau. The Office Action does not specifically address the recited step of sending only a status affecting message.

Applicant respectfully submits that Lau does not recite the step of sending only a status affecting message in the recited manner. Instead, as recited on lines 36-38 of col. 4, Lau's initial redundancy data includes provisioning data and MPLS state data. Moreover, as further recited on lines 43-44 of col. 4, Lau's update data includes provisioning and MPLS state data. Thus, Lau's step does not send only a status-affecting message because it additionally sends provisioning data. Accordingly, Lau does not disclose, teach, or suggest the step of "sending from the message processor of the active module to the distributed layer processor of the inactive module only a status affecting message which affects the status of a connection being held by the active module," as recited in independent claims 1 and 9.

Independent claims 1 and 9 further recite the step of "updating the distributed layer processor of the inactive module in response to the status affecting message so that the inactive module is maintained in hot standby with the active module." (emphasis added). As disclosed in the specification on lines 5-7 of page 9, the DL3-1 processor executes a layer three protocol state machine. As further disclosed on lines 32-33 of page 9 and lines 1-2 of page 10, the inactive card updates its state machine and routing table in accordance with messages received from the active card instead of processing all of the signaling messages as done in a typical hot standby mechanism.

With respect to the above-quoted subject matter, the Office Action relies upon col. 4, lines 32-54 and col. 5, line 56 of Lau. The Office Action does not specifically address the step of updating a processor in response to a status affecting message.

Applicant respectfully submits that Lau does not recite the step of updating a distributed layer processor in this manner. Instead, as recited on lines 63-66 of col. 5, various events are "learned" from Lau's active MPLS control card 12 as update messages. There is no disclosure of applying these messages to a distributed layer processor. Accordingly, Lau does not disclose, teach, or suggest the step of "updating the distributed layer processor of the inactive module in response to the status affecting message so that the inactive module is maintained in hot standby with the active module," as recited in independent claims 1 and 9.

For at least the forgoing reasons, claims 1 and 9 are patentable over Lau because Lau does not disclose each and every element recited in claims 1 and 9.

2. Claim 11

Independent claim 11 recites "a message processor for sending synchronization messages to the other control card to update the distributed processor of the other control card," (emphasis added). As disclosed in the specification on lines 14-18 of page 9, the message processor of the active card sends synchronization message to the inactive card to keep the DL3-1 of the inactive card in synchrony with the DL3-1 of the active card. Thus, the active card updates the DL3-1 of the inactive card from time to time.

With respect to the above-quoted subject matter, the Office Action relies upon col. 4, lines 32-54 and col. 5, lines 6-55 of Lau. The Office Action does not specifically address the recited subject matter of updating a distributed processor.

Applicant respectfully submits that Lau does not recite the step of updating a distributed processor in the claimed manner. While the Office Action alleges that flow classifier 130, IP forward 132, and label forwarder 134 act together as the claimed message processor, Lau does not disclose any interaction between these elements and a distributed processor on an inactive control card. On lines 31-33 of col. 5, Lau discloses that red manager 114 implements initializing and operating a standby MPLS processor, but red manager is not part of the message processor allegedly identified in the Office Action. Thus, Lau does not disclose, teach, or suggest a message processor for sending synchronization messages to the other control card to update the distributed processor of the other control card, as recited in independent claim 11.

For at least the forgoing reasons, claim 11 is patentable over Lau because Lau does not disclose each and every element recited in claim 11.

3. Claims 2-3

Claims 2 and 3 depend from claim 1 and are therefore allowable for at least the reasons stated above in connection with claim 1, as well as for the separately patentable subject matter recited therein.

4. Claim 10

Claim 10 depends from claim 9 and is therefore allowable for at least the reasons stated above in connection with claim 9, as well as for the separately patentable subject matter recited therein.

5. Claims 12-14

Claims 12-14 depend from claim 11, respectively and are therefore allowable for at least the reasons stated above in connection with claim 11, as well as for the separately patentable subject matter recited therein.

B. Rejection of Claims 4-8 Under 35 U.S.C. § 103(a)

In section 5 on pages 10-11, the Final Office Action, dated December 11, 2007, rejects claims 4-8 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lau.

Claims 4-8 depend from claim 1 and are therefore allowable for at least the reasons stated above in connection with claim 1, as well as for the separately patentable subject matter recited therein.

CONCLUSION

For at least the reasons discussed above, it is respectfully submitted that the rejections are in error and that claims 1-14 are in condition for allowance. For at least the above reasons, Appellants respectfully request that this Honorable Board reverse the rejections of claims 1-14.

Respectfully submitted,
KRAMER & AMADO, P.C.

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April 4, 2008
Date

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VIII. CLAIMS APPENDIX

CLAIMS INVOLVED IN THE APPEAL:

1. (Previously Presented) In a node of a telecommunications network, which node comprises redundant routing processor modules, each redundant routing processor module including a primary control processor, a run time control processor, a message processor and a distributed layer processor, one module being an active module and the other an inactive module, a method of maintaining the inactive module in hot standby mode with the active module, comprising steps of:

coordinating operations of the run time control processors, the message processors, and the distributed layer processors, with the primary control processors,

allocating resources between the message processors and the distributed layer processors with the runtime control processors,

sending from the message processor of the active module to the distributed layer processor of the inactive module only a status affecting message which affects the status of a connection being held by the active module, and

updating the distributed layer processor of the inactive module in response to the status affecting message so that the inactive module is maintained in hot standby with the active module.

2. (Previously Presented) The method according to claim 1, wherein the active module holds the connection by exchanging signaling messages, the method further comprising steps of:

the active module filtering out among the signaling messages only status affecting messages, and sending a synchronization message to the inactive module, the synchronization message containing information on how the status of the connection has been changed.

3. (Previously Presented) The method according to claim 2, wherein the active module holds routing information, makes decisions based on the exchanged signaling messages and updates the routing information, the method further comprising a step of:

the active module sending the synchronization message to the inactive module, the synchronization message containing the decisions which affect the status of the connection.

4. (Original) The method according to claim 3, wherein the status of connections is affected by setup, modification, and teardown of a connection.

5. (Original) The method according to claim 4, wherein the connection is a label switched path and the routing processor module performs protocols for managing the label switched path.

6. (Original) The method according to claim 5, wherein the processor module is an MPLS processor module for managing the label switched path, the signaling messages are RSVP messages, and the status affecting messages are messages indicating connection setup, modification, and teardown.

7. (Original) The method according to claim 6, wherein the signaling messages to be filtered are refresh related messages.

8. (Original) The method according to claim 7, wherein the synchronization messages contain information concerning any of resources, endpoint information, forwarding table entries, and label switched path ID.

9. (Previously Presented) In a node of a telecommunications network, which node comprises redundant MPLS processor modules, each redundant MPLS routing processor module including a primary control processor, a run time control processor, a message processor and a distributed layer processor, one module being an active module and the other an inactive module, a method of maintaining the inactive module in hot standby mode with the active module, comprising steps of:

coordinating operations of the run time control processors, the message processors, and the distributed layer processors, with the primary control processors,

allocating resources between the message processors and the distributed layer processors with the runtime control processors,

sending from the message processor of the active module to the distributed layer processor of the inactive module only a status affecting message which affects the status of an label switched path being held by the active module, updating the distributed layer processor of the inactive module in response to the status affecting message so that the inactive module is maintained in hot standby with the active module, and

performing an activity switch from the active module to the inactive module to reverse the roles of both modules so that the label switched path is now held by the newly active module and the newly inactive module is maintained in hot standby.

10. (Original) The method according to claim 9, further comprising a step of:

the newly active module performing an audit of the label switched paths before the activity switch is performed.

11. (Previously Presented) A telecommunications node comprising two routing control cards which are interchangeably maintained as active and inactive at any one time, each of the control cards comprising:

a distributed processor for running protocols for managing a communications path,

a message processor for sending synchronization messages to the other control card to update the distributed processor of the other control card,

a run time control processor for allocating resources between the message processor and the distributed processor, and

a primary control processor for coordinating operations of the run time control processor, the message processor and the distributed processor, characterized in that

while being maintained active, the distributed processor processes all signaling messages concerning the communications path and generates the synchronization messages indicating new status when the status of the communications path has changed, and

while being maintained inactive, the distributed processor for receiving the synchronization messages from the other control card to stay synchronized with the distributed processor of the other control card.

12. (Original) The node according to claim 11, wherein the communications path is a label switched path and the active and inactive control cards comprise state machine for managing the label switched path and the synchronization messages containing new decisions made by the active control card and new forwarding table, and upon updating, the inactive control card comprises updated state machine and forwarding table which have been updated in accordance with the decisions and the new forwarding table.

13. (Original) The node according to claim 12, wherein the both state machines run MPLS protocol, the node further comprising a control processor for performing an activity switch from the active control card to the inactive control card to reverse the roles of the control cards so that the label switched path is now held by the then inactive control card and the then active control card is maintained in hot standby.

14. (Original) The node according to claim 13, wherein the synchronization messages contain information concerning any of resources, endpoint information, forwarding table entries, and label switched path ID.

IX. EVIDENCE APPENDIX

A copy of the following evidence 1) entered by the Examiner, including a statement setting forth where in the record the evidence was entered by the Examiner, 2) relied upon by the Appellant in the appeal, and/or 3) relied upon by the Examiner as to the grounds of rejection to be reviewed on appeal, is attached:

NONE

X. RELATED PROCEEDINGS APPENDIX

Copies of relevant decisions in prior or pending appeals, interferences or judicial proceedings, known to Appellant, Appellant's representative, or the Assignee, that may be related to, or which will directly affect or be directly affected by or have a bearing upon the Board's decision in the pending appeal are attached:

NONE